BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

|  |  |
| --- | --- |
| SUBJECT: STRUCTURAL DESIGN-II (TH 2) | ACCADEMIC SESSION: 2021-22 |
| FACULTY: SRI GIRIJA PRASAD DAS | SEMESTER: 5TH |
|  | SEC: A |

|  |
| --- |
| Sd/- |
| H O D (Civil Engg.) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Discipline:**  **Civil Engineering** | **Semester:**  **5th** | | **Name of the teaching faculty:**  **GIRIJA PRASAD DAS** |
| **Subject:**  **STRUCTURAL DESIGN -II** | **No. of Days/ per week class allotted: 04 periods per week. (Tue-1 period ,wed- 1 period and Fri – 2 period)** | | **Semester From Date: 01-10-2021 To Date: 08-01-2022**  **No. of weeks: 14 weeks** |
| **Week** | **Class Day** | **No of period available** | **Theory Topics** |
| 1st | 01/10/2021 | 1 | **1 INTRODUCTION**  1.1 Common steel Structures, advantages and disadvantages of steel structure. |
| 2nd | 05/10/2021 | 1 | 1.2 Type of steel, properties of structural steel. |
| 08/10/2021 | 2 | 1.3 Rolled steel sections, special consideration in steel design.  1.4 Load and its combinations  1.5 Structural analysis and design philosophy |
| 3rd | 22/10/2021 | 2 | 1.6Brief review of principle of limit state design.  **2.STRUCTRAL STEEL FASTENERS AND CONNECTIONS**  2.1 Bolted connections. |
| 4th | 26/10/2021 | 1 | 2.1.1 Classification of bolts, advantages and disadvantages of bolted connection. |
| 27/10/2021 | 1 | 2.1.2 Different terminology, spacing and edge distance of bolt holes. |
| 29/10/2021 | 2 | 2.1.3 types of bolted connections  2.1.4 Types of action of fasteners, assumptions and principle of design  Monthly Class test |
| 5th | 02/11/2021 | 1 | 2.1.3 types of bolted connections  2.1.4 Types of action of fasteners, assumptions and principle of design  2.1.5 strength of plates in a joint, strength of bearing type of bolts, reduction factors and shear capacity of HSFG bolts |
| 03/11/2021 | 1 | 2.1.6 Analysis and design of joint using bearing type.  2.1.7 Efficiency of a joint  2.2.1 Welded connections and its advantages and disadvantages. |
| 05/11/2021 | 2 | 2.2.2 Types of welded joints and specification of welding.  2.2.3 Design Stress in welds.  2.2.4 Strength in welded joints. |
| 6th | 09/11/2021 | 1 | Problems related to bolted and welded connections. |
| 10/11/2021 | 1 | Exam on Chapter 2 |
| 12/11/2021 | 2 | **3.DESIGN OF STEEL TENSION MEMBER**  3.1 common shape of tension members  3.2 maximum values of effective slenderness ratio. |
| 7TH | 16/11/2021 | 1 | 3.4 analysis and design of tension members. |
| 17/11/2021 | 1 | Doubt clearing and problem solving classes |
| 19/11/2021 | 2 | Doubt clearing and problem solving classes. |
| 8TH | 23/11/2021 | 1 | **4.DESIGN OF STEEL COMPRESSION MEMBERS**  4.1 common shapes of compression members |
| 24/11/2021 | 1 | 4.2 buckling class of cross sections, slenderness ratio |
| 26/11/2021 | 2 | 4.3design compressive stress and strength of compression members  4.4 analysis and design of compression members (axial load only). |
| 9TH | 30/11/2021 | 1 | Monthly Class test. |
| 01/12/2021 | 1 | InternalAssessment |
| 03/12/2021 | 2 | InternalAssessment |
| 10TH | 07/12/2021 | 1 | **5.DESIGN OF STEEL BEAM**  5.1 common cross sections and their classifications of steel beams |
| 08/12/2021 | 1 | 5.2deflection limits, web buckling and web crippling |
| 10/12/2021 | 2 | 5.3 design of laterally supported beams against bending and shear  Problem solving classes |
| 11TH | 14/12/2021 | 1 | Doubt clearing class |
| 15/12/2021 | 1 | **6.DESIGN OF TUBULAR STEEL STRUCTURE**  6.1 round tubular sections ,permissible stresses |
| 17/12/2021 | 2 | 6.2 tubular compression and tension members  6.3 joints in tubular trusses |
| 12TH | 21/12/2021 | 1 | Problem solving classes |
| 22/12/2021 | 1 | **7.DESIGN OF MASONARY STRUCTURE**  7.1 design considerations of masonry walls and columns |
| 24/12/2021 | 2 | Design considerations of masonry columns |
| 13TH | 28/12/2021 | 1 | 7.2 load and non load bearing wall |
| 29/12/2021 | 1 | 7.3 slenderness ratio, effective length, height and thickness |
| 31/12/2021 | 2 | Monthly Class test |
| 14TH | 04/01/2022 | 1 | REVISION |
| 05/01/2022 | 1 | REVISION |
| 07/01/2022 | 2 | Previous year question discussion |